Efficacy of QR Code Assisted Instructions in Developing Occupational Competencies among Persons with Visual Impairment

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Synopsis

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Introduction

The capability of building career is crucial for all human being. People need to learn specific skills related to occupational competencies to build a successful career. Occupational competencies refer to the measurable pattern of knowledge, skills, behaviors, and other characteristics that help individuals perform certain tasks or occupational functions. It includes skills like attending an interview, showcasing the personality, exhibiting social behavior, soft skills, public speaking skills, workplace behavior, personal hygiene, following values, and morals. Equal opportunity in the workplace is a fundamental Human Right for persons with visual impairments. A person has the right to assert their needs and interests in the workplace for better performance. However, employers are unaware of disability rights and how to accommodate persons with visual impairment; and negative attitudes toward employees with visual impairment could serve as a prominent barrier (Dong et al., 2017) to employment. However, it is difficult for a person with visual impairment to equip with the requirements of a career. India has a large population with visual impairment that encompasses vision loss, whether partial or only light perception, which hinders achieving a successful career. Inclusion at the local and national level is essential for people with technical loss of vision to benefit from the services and continue a purposeful way of life.

Significance of the Study

- Occupational Competencies are essential skills that need to be learnt by individuals for building a successful career. In this era of advanced technology, people need to know the demands or criteria of the workplace as an employee.
- In many cases, it was seen that these training programs do not cover each vital aspect related to professional behavior. There is always a gap in acquiring essential skills such as professional skills, the intention to work in a group, and dedication to work.
- Understanding facts regarding the workplace, information about the various jobs and their characteristics, and practicing the skills required for a job will help them to prepare more effectively.
- Thus, individuals with visual impairments need technology-enhanced assistance to enhance their independence and productivity, be empowered, and improve their lives.
- Technology-enhanced training programs such as “QR Code Assisted Instructions” can be helpful for persons with visual impairments in job-seeking activities and pursue a job based on individual skills and interest.
- Efficacy of QR Code Assisted Instructions in enhancing occupational competencies can be assessed through Pre-test, Post-test and Follow-up.

- **Need of the Study**
- Occupational Competencies are essential skills that need to be learnt individually for building a successful career. In this technology-based era, the career aspirants need to be aware of the demands or criteria of the workplace. The most common way to gain occupational competencies is to be thorough in the subject area, work in a similar

field for a long time, or play a volunteer role. Since competencies reflect practice and are the outcome of educational programs, they should be developed with academics and practitioners. Schools and colleges are excellent places for developing such behavior skills that will be useful later. However, one of the drawbacks of formal education is that it is insufficient to be equipped with technical or professional skills. People need to undergo specific training programs to benefit from career opportunities, e.g., computer training programs.

Statement of the Problem

The statement of the problem is worded as **"Efficacy of QR Code Assisted Instructions in Developing Occupational Competencies among Persons with Visual Impairment".**

Operational Definitions

Disability

"Any restriction or lack of ability to perform an activity that is generally accepted as (an) essential component of everyday life, such as personal hygiene or moving about" can be defined as disability (WHO, 1980).

Visual Impairment

The term 'visual impairment' refers to the specific physical condition that leads to vision loss or difficulties in vision. However, in recent years, visual impairment has become an umbrella term that denotes low vision and absence of light perception. Furthermore, the term 'visually impaired' separates the functionally blind from those with some residual vision.

Blindness

'Blindness' is a "condition where a person has any of the following conditions, after best correction – (i) Total absence of sight; or (ii) visual acuity less than 6/60 or less than 20/200 (Snellen) in the better eye with correcting lenses; or (iii) limitation of the field of vision subtending an angle of less than 10 degrees (Persons with Disabilities Act, India, 2016).

Low Vision

Low vision is a condition of eye function that people can experience that might cause blindness, partial or blurred vision with light perception. It is not correctable with surgery or prescribed glasses. However, low vision does not mean complete blindness and can be improved with the use of visual aids.

Independent Living

Independent living for a person with visual impairment includes an extensive range encompassing daily living activities, independent travel, and being economically independent. They need adequate training and exposure to acquire those skills to reduce the level of reliance on others and feel comfortable while performing a task.

Career Goals

Career goals denote the aims, objectives, and mindsets of a person who is necessarily set to achieve their professional life. Having a definite career goal often helps a person to focus, motivate, and move towards success. The preparation for a successful career can start early from the high school level and their academic activities.

Employment

Employment means freedom –financial freedom, which is the major goal of an educated person. Everyone has the right to life, liberty, security, and employment ensures all three. Like an average person, the person with visual impairment has equal right to be employed and enjoy all available facilities. Employment leads to the financial freedom that paves the way for survival in society, i.e., a critical factor in being pertinacious.

Occupational Competency

Occupational competencies denote the professional skills essential for the workplace. The knowledge and awareness about a suitable job, its value, and adjustment with coworkers are significant aspects of a professional that may need to be learned individually. It reflects the ability and interest of a person. Research has shown the high unemployment rate among graduates with visual impairment.

Assistive Technology

Technology is an integral part of our society and a significant contributor to our daily life. Like common people, persons with visual impairments can use technology, but they require special tools to access information, called assistive technology.

QR Code

A QR Code or Quick Response Code is a machine-readable two-dimensional version of barcode typically made of black and white pixel patterns. The developer of the QR Code is Denso Wave (1994). ‘QR’ stands for “Quick Response,” which refers to instant access to the information hidden in code by using a “QR Code” scanner online. It contains information about an item attached to it. It often contains data for a locator, identifier, or tracker that points to a website or application.

Objectives of the Study

The major objectives of the study were to

- Identify the students enrolled in Higher Education and Professional Courses.

» Develop a Rating Scale and conduct pre test to assess the Occupational Competencies among persons with visual impairment prior to the study.
» Develop a QR Assisted Intervention Package byincorporating Occupational Competencies.
» Implement and analyse the effectiveness of the Intervention Package among the participants.
» Conduct a post test to measure the effectiveness of the intervention package in developing Occupational Competencies among persons with visual impairment.

Hypotheses

- There is no significant difference between the Before, After, and Follow-up phases in Enhancing Occupational Competencies using QR Code Assisted Instruction among Persons with Visual Impairment.
- There is no significant difference between the Before, After, and Follow-up phases in Enhancing Occupational Competencies using QR Code Assisted Instruction among Persons with Visual Impairment with respect to Age Group.
- There is no significant difference between the Before, After, and Follow-up phases in Enhancing Occupational Competencies using QR Code Assisted Instruction among Persons with Visual Impairment with respect to Gender.
- There is no significant difference between the Before, After, and Follow-up phases in Enhancing Occupational Competencies using QR Code Assisted Instruction among Persons with Visual Impairment with respect to Locality.
- There is no significant difference between the Before, After, and Follow-up phases in Enhancing Occupational Competencies using QR Code Assisted Instruction among Persons with Visual Impairment with respect to Type of Visual Impairment.
- There is no significant difference between the Before, After, and Follow-up phases in Enhancing Occupational Competencies using QR Code Assisted Instruction among Persons with Visual Impairment with respect to Socio Economic Status.

Scope of the Study

- The purpose of the study was to analyze the impact of QR Code Assisted Instruction among persons with visual impairmentand the study was experimental in nature
- The findings of the study will be of immense value in acquiring skills related to professional competencies for those pursuing higher education and preparing for an interview in both the private and government sectors
- The findings of the study will enablepersons with visual impairments and theirparents, professionals, and employers to be active and assist in job-seeking activities.

Review of Literature

Odame et al. (2021) did a study on "*University Experiences of Graduates with Visual Impairments in Ghana*."The significant challenges they encountered were inaccessible programs and unfriendly physical environments, financial hardship, inadequate learning materials, and lecturers' negative attitudes toward persons with visual impairments.

Cmar and Steverson (2021) conducted a study entitled "*Job Search Activities, Job-Seeking Barriers, and Work Experiences of Transition-Age Youths with Visual Impairments*" to describe the job-seeking and work experiences of transition-age youths with visual impairments. Many of them encountered barriers during their job search and had moderate levels of preparation to handle job-seeking barriers and parental support for job seeking. The authors recommended that youths with visual impairments can benefit from feedback on their job-seeking approach, application materials, and interview skills so they can focus and refocus on their efforts.

McDonnall (2010) did a study entitled "*Factors predicting post-high school employment for young adults with Visual Impairments*." This study aimed to identify factors that predict future employment for this population and compare these factors to the factors that predict employment for the general population. Two models were developed and tested: one for persons with VI and one for the general population. Independent variables that significantly predict employment for young adults with VI were the number of jobs held as teenagers, math and verbal aptitude, parental support, and self-reported health. On the other hand, participation in school-to-work programs and educational level did not significantly predict employment for this population.

Kumari and Bansal (2020) studied "*Impact of Perceived Organizational Virtuousness on Workplace Happiness: A Comparative Study of Visually Impaired and Sighted*."The primary objective of this study is to highlight the impact of Perceived Organizational Virtuousness on Workplace Happiness of visually impaired and sighted employees of various government organizations in Haryana. The study follows a quantitative research approach. A newly added dimension (responsibility) of Organizational Virtuousness also shows a positive and significant impact on Workplace Happiness.

Tong and Zhang (2014) did a study entitled "*Supporting Social Competence Among Secondary Students in Hong Kong: Teachers' Beliefs about School-Wide Interventions.*" The study aims to examine the key factors that lead to effective implementation of school-wide behavior interventions; this study examined the extent to which school-wide behavior interventions were implemented in fur Hong Kong schools. Most particulars in the present study believed that behavioral and social skills programs should be implemented in schools early. Furthermore, findings suggested that it is essential to consider the interrelationship of professional, strategic, contextual, and attitudinal factors that support students' social competence and minimize their challenging behavior.

Papakonstantinou and Papadopoulos (2020) studied "*The Implementation of Holland Self-Directed Search to Employed Higher Education Graduated: A Comparison between Sighted Adults and Adults with Visual Impairments*." This study aimed to explore (a) the range of occupational possibilities that, according to the Self-Directed Search (SDS), most closely resemble the personality types of adults with visual impairments and sighted adults, (b) the differences between the occupational possibilities suggested by the SDS among adults with visual impairments and sighted adults, and (c) the differences between the current occupational choices and the occupational possibilities according to the SDS of adults with visual impairments and sighted adults, and the comparison among them. The statistical analysis results showed that there are no differences between the two groups (visually impaired and sighted) in terms of the Iachan index. This index determines the unity between two SDS codes, representing the current occupations and the occupations proposed by the SDS application.

Gauci (2020) conducted a study entitled "*Dis/ability-producing Technology Assemblages and Networks at the Workplace: A New Materialist Analysis*." In this study, 25 Maltese employees with physical or sensory impairments shared their experiences regarding access and use of various technologies at work, first via focus groups and individual interviews and then through observation sessions at their workplace. The research initially rested on the premise that disabled people face various barriers to access and use of technology in their employment that are not directly ensuing from their impairments. It is then built on this premise by applying concepts from new materialisms to broaden the notions proposed by the social model of disability.

Research Gap

- It has been observed from the existing literature that there is a lack of research in the career guidance of persons with visual impairment.
- Also, the barriers in employment were accessibility, lack of awareness, family support, and assistive technology.
- Therefore, customized training in career planning, job-seeking activities and necessary support can be helpful for them to be employed and live independently.

Methodology

The study aimed to determine the effectiveness of QR Code assisted instructions in developing occupational competencies among persons with visual impairments, so the pre-test–post-test–follow-up design was used. The study aimed to enhance the occupational competencies among persons with visual impairment thus the stratified random sampling was followed to identify and select the participants. The sample for the study was sixty (N=60) males and females with low vision and total blindness, aged 20-35 years. The participants were further classified into the age group of 20-25 and 26-35 years. The students in higher education and preparing for various government and private jobs were the only criteria considered for participation in this study.

The study was conducted in III phases.

Phase I: In Phase I, data were collected regarding the Age, Gender, Locality, Type of Impairment, and Economic Status of the selected participants. Pre test was administered among the participants to collect the prior knowledge regarding occupational competencies. An online form was prepared and shared through the participants' email to collect the data. The participants could use the Google Translator application to access the content in their local language. Each item contains three options to gather the information.

Phase II: In Phase II, the QR Code Assisted intervention was carried out. Treatment, i.e., self-learning through a smartphone application, was implemented in the following manner:

Sixty persons with visual impairment participated in this study. They were grouped into four different groups containing 20 members each. The participants were introduced to about the activities for occupational competencies designed for each domain. Training begins with the first domain, i.e., 'workplace behavior,' proceeding to other domains. Each domain was divided as given in Table 1.

Table 1. Domains and sub-domains of Occupational Competencies

Domains	Sub-Domains
Workplace Behavior	▪ Physical behavior ▪ Cognitive behavior
Workplace Culture	▪ Specific culture ▪ Cooperation ▪ Punctuality ▪ Working online.
Soft Skills	▪ Positive behavior ▪ Sense of humor ▪ Work ethics ▪ Emotional control.
Basic Mannerism	▪ Respecting coworkers ▪ Avoid filthy language ▪ Do not boss over
Personality	▪ Enthusiastic ▪ Faithful ▪ Style (formal dressing) ▪ Genuine
Maintaining Postures	▪ Body postures ▪ Sitting position ▪ Use of System (computers) ▪ Hygiene
Etiquette	▪ Thoughtful ▪ Open-minded ▪ Trustworthy
Self Advocacy	▪ Request facilities ▪ Hard work ▪ Raise voice
Attending Interview	▪ Interest, decision making, ▪ Preparing a CV ▪ Goal-directed

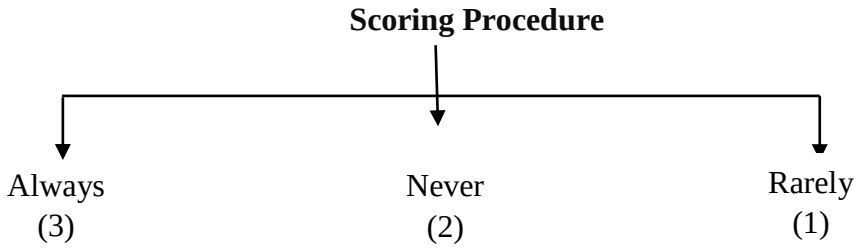
Value Education	▪ Quality talking ▪ Being a prominent team member ▪ Maintain values ▪ Be wise.

The package was developed by incorporating all the components in a web page and the participants were involved in it through self-learning mode. The training was provided for two days a week, and the consecutive two days were for practicing and providing assistance in acquiring the skills. The participants were allowed to attend the hands-on sessions for one hour in each day. The participants were divided in four groups, three of the groups involved 20 regular participants and the participants who were irregular to attend the sessions were moved to fourth group. Among the 60 participants total 17 of them were irregular; thus the investigator rescheduled separate sessions for them.

During the training sessions, the investigator assisted to use the QR Code provided along with the verbal instruction to understand each domain. In addition to the verbal instructions, the investigator demonstrated the proper sitting position, i.e., to be maintained in a formal workplace. The intervention was carried out for ten months. The investigator provided training and assistance and monitored each participant's progress. Each component's need, importance, and use were explained to the participants individually. The participants in each group attended morning and afternoon sessions for each consecutive day in a week for one hour. Online sessions and in-person sessions were conducted separately. After the instructions proved by the investigator, the participants were asked to learn the skill at home and share their knowledge and understanding about each skill in the next day sessions. The investigator was careful in awareness generation and provided further assistance to comprehend and practice the skills. The below table cites an example of the training and practice schedule for one month, followed for the whole intervention period.

Tools used in the Study

1. Personal Data Bank
2. Rating Scale for Validation of the Tool
3. Rating Scale to assess Occupational Competencies



Intervention Package

QR Code Assisted instructions were designed and developed to include each skill that will help to incorporate the occupational competencies given in Table 3.3. Each single activity outlines the essential formal behavior those to be maintained or practiced by an

employee. The instructions were intended to create awareness and understanding of various professional behaviors among persons with visual impairment pursuing higher education. The QR Code Assisted Intervention Package was designed and developed to enhance the knowledge, awareness, and understanding of occupational competencies and it comprised of each basic activity that is necessary to perform or practice in a formal workplace environment. The activities include maintaining cleanness, arrangement of each document, following formal dress code, punctuality, maintaining postures, hygiene, using wise words, self-advocacy, safety, and values.

The QR Code Assisted Instruction was provided to the participants by using a web page named '*professionallcompetencies.wordpress.com*'. A total of 150 activities were comprised within the web page and designed to incorporate these skills from basic to higher-order professional skills. The participants were allowed to browse the webpage using their phones and laptops, and they practiced the skills in a deliberate schedule for ten months. Initially, the selected domains were described briefly on the web page and the details of each skill are linked with a search button named 'learn more' and a QR Code. The participants with total blindness accessed the information using screen reader or text-to-speech software and the participants with low vision used the screen magnifiers on their devices.

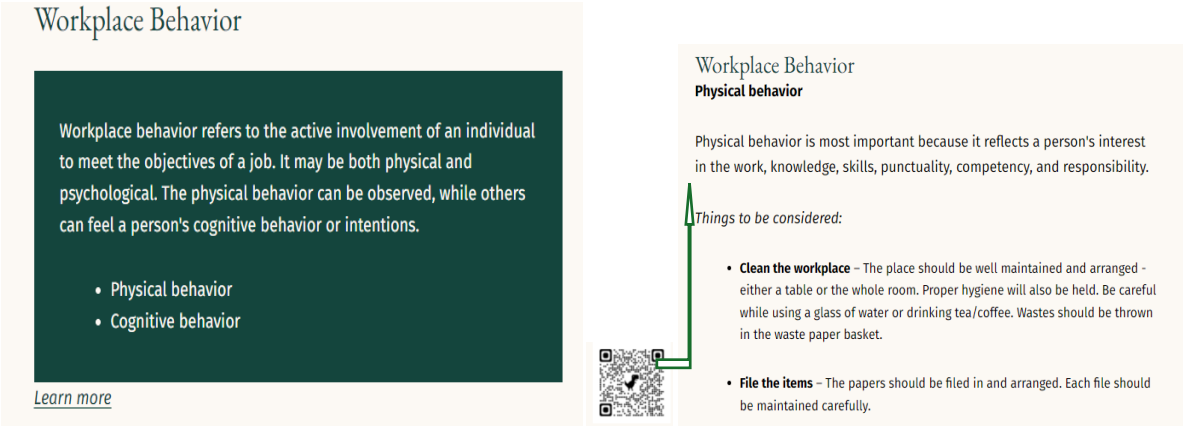

Workplace Behavior
Workplace behavior refers to the active involvement of an individual to meet the objectives of a job. It may be both physical and psychological. The physical behavior can be observed, while others can feel a person's cognitive behavior or intentions.
• Physical behavior
• Cognitive behavior
Learn more
Workplace Behavior
Physical behavior
Physical behavior is most important because it reflects a person's interest in the work, knowledge, skills, punctuality, competency, and responsibility.
Things to be considered:
• Clean the workplace – The place should be well maintained and arranged - either a table or the whole room. Proper hygiene will also be held. Be careful while using a glass of water or drinking tea/coffee. Wastes should be thrown in the waste paper basket.
• File the items – The papers should be filed in and arranged. Each file should be maintained carefully.

Figure: Sample Image of QR Code Assisted Instruction in Enhancing Occupational Competencies

Period of Intervention

The intervention was carried out for ten months. The investigator provided training and assistance and monitored each participant's progress. Each component's need, importance, and use were explained to the participants individually. The below table cites an example of the training and practice schedule for one month, followed for the whole intervention period.

Collection of Data

The collection of data consisted of the following:

1) Collecting Personal Information;

2) Pretest - to collect the prior knowledge regarding occupational competencies;

3) Intervention on enhancing occupational competencies using the QR Code Assisted instruction package.

4) Post test was conducted and follow-up was done and the responses were analysed qualitatively and quantitatively.

Phase III: Post test was conducted in this phase to collect the data in this phase. Responses were gathered by using the same tool administered during the pre test. Follow-up was done and the test scores of the three phases were statistically analyzed and presented.

Data Analysis Procedure

- Data were analyzed using qualitative and quantitative methods. The demographic details of the participants were classified into two levels analyzed with percentages.
- The knowledge and awareness of occupational competencies were analyzed using Mean and Standard Deviation to find out the difference between the Before, After, and Follow-up phases.
- To determine the efficacy of QR code assisted instruction in enhancing occupational competencies among persons with visual impairments the Repeated Measures of ANOVA was used. Since the study includes three phase, viz., pre-test, post-test, and follow-up responses from three groups has been analyzed The investigator used Repeated Measures of ANOVA to determine whether there is a statistically significant difference exist between the means of three or more groups.
- In this study, responses were collected from the same group in three phases, i.e., pre-test, post-test, and follow-up.
- To determine the efficacy of QR code assisted instruction in enhancing occupational competency with respect to the demographic variables of persons with visual impairments, one-way ANOVA was used.

Findings

1) Workplace Behavior

Overall performance of the participants indicated a positive enhancement in awareness of workplace behaviour skill. Bonferroni's pairwise comparison scores revealed that the participants could learn the skill through the instruction and retain them for a long time. A comparison with respect to the age group showed that the participants aged 20-25 years lack the awareness of workplace behavior than participants aged 26-35 years in the before and after phases. However, there was no significant difference observed between the two groups in the follow-up phase. The QR code assisted instruction enhanced the workplace behavior skills among male and female participants equally in the before, after, and follow-up phases. The impact of low vision and total blindness was analyzed in enhancing workplace behavior skills and no significant difference was observed between the two groups.

2) Workplace Culture

The overall performance indicated that the instructions enabled the participants to learn the importance of practicing workplace culture as an employee. Bonferroni's pairwise comparison scores revealed that the QR code assisted instructions were helpful in learning the skills and retaining them for a longer time. Significant difference was not observed between the two groups while the awareness of workplace culture was compared. However, the participants aged 20-25 years showed a significant improvement ($p<0.01$) than participants with 26-35 years in the after and follow-up phases. The QR code assisted instruction enhanced the workplace culture skills among male and female participants equally in the before, after, and follow-up phases. The impact of low vision and total blindness was analyzed in enhancing workplace culture skills and no significant difference was observed between the two groups.

3) Soft Skills

Training on enhancing soft skills was provided using QR code assisted instructions. The overall Mean Scores Before (M=29.30), After (M=39.03), and Follow-up (39.77) phases indicated that there was a significant improvement in knowledge and awareness of practicing soft skills in a formal workplace environment. Bonferroni's pairwise comparison scores revealed that the participants could enhance their soft skills required for a formal workplace environment through QR code assisted instruction and retain them for a long time. The participants aged 20-25 years exhibited better knowledge and understanding of soft skills at the workplace before the QR code assisted instructions were provided. However, there was no significant difference observed between the two groups after and follow-up phases. No significant difference was observed among males and females with visual impairments before the QR code assisted instruction was provided. Also, the instructions equally enhanced the soft skills with respect to gender in the after and follow-up phases. The impact of low vision and total blindness was analyzed in enhancing soft skills and it was found out that the participants with low vision possessed a better understanding of soft skills required in a formal workplace environment. However, the QR code assisted instructions were equally effective for the two groups in the after and follow-up phases.

4) Basic Mannerisms

Showcasing basic mannerisms is essential in a workplace and it was observed that the participants were able to equip themselves in exhibiting the basic mannerisms skills. Bonferroni's pairwise comparison scores revealed that the participants could learn the basic mannerism skill through the QR code assisted instruction and retain them for a long time. The participants aged 20-25 years showed better knowledge and understanding of basic mannerism skills required at the workplace before the QR code assisted instructions were provided. No significant difference was observed between the two groups after the training. However, the follow-up phases showed a slight difference in knowledge and understanding of basic mannerism skills. No significant difference was observed among males and females with visual impairments before the QR code assisted instruction was provided. However, the

QR code assisted instruction enhanced the basic mannerisms among male and female participants' equally in the after and follow-up phases. The impact of low vision and total blindness was analyzed in enhancing basic mannerism skills and no significant difference was observed.

5) Personality

The QR code assisted instruction was provided to enhance the skills to maintain personality among persons with visual impairment. The overall Mean scores Before (M=32.38), After (M=37.23), and Follow-up (M=38.98) phases revealed that training on enhancing and maintaining personality was effective. Bonferroni's pairwise comparison scores showed that persons with visual impairments improved their knowledge and awareness of maintaining personality through QR Code assisted instructions and retained them for a prolonged period. The participants aged 20-25 years had better knowledge and understanding than the other group in the before phase. However, no significant difference was observed in the after and follow-up phases. Although there was no group difference was observed before the QR code assisted instruction provided, the male and female participants equally equipped themselves in maintaining personality in the after and follow-up phases. The impact of low vision and total blindness was analyzed in enhancing skills to maintain personality and no significant difference was noted.

6) Maintaining Postures

The participants were allowed to enhance their knowledge in maintaining appropriate postures (especially sitting positions) using QR code assisted instruction. It was observed that there was a significant improvement in the overall performance of knowledge and awareness of maintaining appropriate postures. Bonferroni's pairwise comparison scores indicated that the instruction enabled the participants to enhance their skills and retain them for a longer time. The participants aged 20-25 years had better knowledge and understanding than the other group in the before phase. However, no significant difference was observed in the after and follow-up phases. A significant difference observed after the training was provided among male and female participants. The impact of low vision and total blindness was analyzed in enhancing the skills to maintain postures and no significant difference was found out.

7) Etiquette

The overall Mean scores Before (M=29.38), After (M=38.85), and Follow-up (M=38.91) Bonferroni's pairwise comparison scores revealed that the participants could learn the skill through the instruction and retain them for a long time. Significant difference was observed in the before, after, and follow-up phases. The QR code assisted instruction enhanced the etiquette skills among male and female participants equally in the before, after, and follow-up phases. The impact of low vision and total blindness was analyzed in enhancing etiquette and no significant difference was observed.

8) Self Advocacy

The QR code assisted instruction was provided to enhance the self-advocacy skills among persons with visual impairment. The Before, After, and Follow-up phases' scores were significant at 0.01 level. Bonferroni's pairwise comparison scores revealed that the participants could learn the self-advocacy skill through the instruction and retain them for a long time. The participants aged 20-25 years had better knowledge and understanding than the other group in the before phase. However, no significant difference was observed in the after and follow-up phases. The QR code assisted instruction enhanced the skill of self advocacy among male and female participants equally in the before, after, and follow-up phases.

9) Interview Attending

Interview preparation skills are essential job-seeking activities for persons with visual impairment. The overall mean scores Before (M=29.32), After (M=36.35), and Follow-up (M=41.88) phases of knowledge and understanding of interview preparation skills were highly significant. Bonferroni's pairwise comparison scores revealed that the participants could learn the techniques of interview attending through the QR code assisted instruction and exhibited a better performance in the follow-up phase. The participants aged 20-25 years had better knowledge and understanding than the other group in the before and after phases. However, no significant difference was observed in the follow-up phases. The QR code assisted instruction enhanced the skills to attend interviews among male and female participants equally in the before, after, and follow-up phases. The impact of low vision and total blindness was analyzed in enhancing attending interview skills and no significant difference was observed.

10) Value Education

Awareness was created among persons with visual impairment to practice values and morals in the workplace. The overall Mean Scores Before (M=29.32), After (M=35.95), and Follow-up (M=40.20) indicated that the QR code assisted instruction was effective. Bonferroni's pairwise comparison scores revealed that the participants could enhance their awareness of practicing values and morals in the workplace through the instruction and retain them for a long time. The participants aged 20-25 years had better knowledge and understanding than the other group in the before and after phases. However, no significant difference was observed in the follow-up phases. The QR code assisted instruction enhanced the skills to showcasing values and morals among male and female participants equally in the before, after, and follow-up phases. The impact of low vision and total blindness was analyzed in enhancing skills to practice values and morals and skills and no significant difference was observed.

Limitations

- The study was only limited to persons with visual impairment aged between 20 to 35 years.
- The study was restricted to persons with visual impairment in four districts of Tamil Nadu.

- The study was not assigned to persons with associate conditions.
- The persons with visual impairment who do not aspire for their career were not included in this study.
- The persons who were unable to use the electronic gadgets were excluded from the study.

Recommendations

- **Implementation for Persons with Visual Impairments:** The study recommends implementing the QR code assisted instructional package in vocational rehabilitation centers for persons with visual impairments to create in-depth knowledge and awareness of occupational competencies. It can be a supportive material for job-seeking activities.
- **Implementation for persons with any other Disabilities:** The QR code assisted instructional package may be implemented in vocational rehabilitation centers for individuals having disabilities such as hearing impairment or intellectual disabilities (mild & moderate) which may be useful for exploring the underlying consumptions of a formal workplace environment.
- **Policy formulation:** The National and State Government should formulate policy for the implementation QR Code Assisted instructional package for persons with special needs in multidisciplinary modes.
- **Use as an Add-on to the Curriculum:** The QR code assisted instructional package may be included in the existing curriculum for students with visual impairments, hearing impairments, intellectual disability, and autism. Thus, they will be aware of the formal environment from their school days and prepare for a better future.
- **Campaigning:** Awareness programs can be conducted by professionals among the students thus they can benefit from it. Awareness programs can be conducted to create awareness in society regarding the ability and interests of persons with visual impairments to increase their acceptability.

Suggestions for further research

1. Research studies can be carried out among persons with hearing impairment or intellectual disability (mild & moderate) by using the QR Code Assisted Instructions to enhance occupational competencies.
2. Comparative study can be done among sighted individuals and persons with visual impairment to measure the effectiveness of QR Code Assisted Instructions to enhance occupational competencies.
3. Studies can be carried out among a large group of samples from various regions of the country.
4. Longitudinal study can be carried out to measure the efficacy of QR Code Assisted Instructions among persons with disabilities.
5. Further studies can be done by including the in-depth occupational skills required for an employee among persons with disabilities.

Conclusion

Employment is crucial for an individual and enhancement of occupational competencies among persons with visual impairment has the potential to increase the employment rate. Thus, support services for job-seeking activities provided by the rehabilitation professionals can guide young career aspirants pursuing higher education and preparing for competitive examinations. Hands-on experience to practice such skills and detailed information about the workplace environment is required for an individual to prepare themselves to adjust and work with proficiency.

The goal for all students is getting in employment successfully that result in valued goods and services (Wisniewski, Alper, & Schloss, 1991). Therefore, to address the need of young aspirants with visual impairments, QR Code Assisted Instruction was developed and implemented among college students and persons with legal blindness preparing for sophisticated career. The training package was intended to support the professional as well as the young aspirants in preparing and enhancing occupational competencies. Thus, eligible persons with visual impairment could approach the job based on their interests, skill, and proficiency and advance their careers and live a dignified life.

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